AMENDMENTS TO THE CLAIMS

1. (Currently Amended)   A method for recognizing a road sign in a digital color image, where the road sign is associated with a shape template and at least one color criterion, the method comprising ~~the steps of~~:

capturing a digital color image;

performing color segmentation on the digital color image to produce at least one segmentation matrix;

correlating at least one region of interest within the ~~digital color image~~ segmentation matrix with a template matrix, where the template matrix is specific to a reference sign; and

recognizing the image as containing the reference sign, responsive to the correlating step[[.]].

wherein the performing color segmentation comprises comparing a plurality of color components at each of a plurality of pixel locations within the digital color image to the color criterion, the color criterion comprising at least one relationship between two color components selected from the group of R,G,B.

2. (Currently Amended)   The method of claim 1, further comprising:

~~performing color segmentation on the digital color image to produce at least one matrix;~~

extracting at least one region of interest from the at least one segmentation matrix to produce at least one submatrix containing at least one potential road sign;

correlating the at least one submatrix with a template matrix to produce a correlation coefficient, where the ~~reference~~ template matrix is specific to a reference sign; and

recognizing the image as containing the reference sign, based upon a comparison of the correlation coefficient and a correlation threshold value.

3. (Currently Amended)   The method of claim 1, wherein the at least one color

criterion comprises a plurality of color criteria and the performing step further comprises:

setting each element of the at least one segmentation matrix to a first value if the corresponding pixel position in the digital color image matches any of the at least one plurality of color criterion criteria associated with the road sign.

4. (Cancelled)

5. (Currently Amended)   The method of claim [[4]] 5, wherein the at least one color criterion is locally adaptive such that the first threshold value varies at each location within the template matrix.

6. (Original)   The method of claim 5, wherein the first threshold value at a location $X(i,j)$ is the average of a square submatrix centered at $X(i,j)$.

7. (Original)   The method of claim 1, further comprising a second color criterion, where the first criterion is used in dim light conditions and the second criterion is used in bright light conditions.

8. (Cancelled)

9. (Currently Amended)   The method of claim 1, where the segmentation matrix contains only binary values.

10. (Currently Amended)   The method of claim 1, further comprising:

recursively removing any invalid row and any invalid column from the segmentation matrix, where an invalid row contains less than a first threshold value of a binary value and an invalid column contains less than a second threshold value of the binary value.

11. (Currently Amended)   The method of claim 1, where the correlating step further comprises:

creating a validating column vector ~~corresponding to all columns~~ by summing all elements of [[in]] the submatrix along columns;

creating a validating row vector ~~corresponding to all rows~~ by summing all elements of [[in]] the submatrix along rows;

correlating the validating column vector with a template column vector; and

correlating the validating row vector with a template row vector.

12. (Currently Amended)   The method of claim 2 [[1]], where the correlating step further comprises:

normalizing the submatrix, such that each element in the normalized submatrix is the weighted sum of the element's four neighboring elements.

13. (Currently Amended)   The method of claim 2 [[1]], where the correlating step further comprises calculating a two-dimensional correlation coefficient which measures the correlation between the submatrix and a two-dimensional template matrix.

14. (Cancelled)

15. (Currently Amended)   The method of claim 2 [[1]], where the extracting step further comprises:

scanning the matrix for [[a]] an element with value 1 at position E(x,y); and

performing a depth-first-search to find all elements with value 1 that are connected to E(x,y);

16. (Original) The method of claim 15, where the extracting step further comprises:

setting the element at position E(x,y) to a unique identifier; and

setting the value of the connected elements to the unique identifier.

17. (Currently Amended)   A computer readable medium having a computer program for recognizing a road sign in a digital color image, where the road sign is associated with a shape template and at least one color criterion, comprising:

logic configured to capture a digital color image;

logic configured to perform color segmentation on the digital color image to produce at least one segmentation matrix;

logic <u>configured to</u> correlate at least one region of interest within the digital color image with a template matrix, where the template matrix is specific to a reference sign; and

logic configured to recognize the image as containing the reference sign, responsive to the correlation logic[[.]]<u>,</u>

<u>wherein the logic configured to perform color segmentation further comprises logic configured to compare a plurality of color components at each of a plurality of pixel locations within the digital color image to the color criterion, the color criterion comprising at least one relationship between two color components selected from the group of R,G,B.</u>

18. (Currently Amended)   A system for recognizing a road sign in a digital color image, where the road sign is associated with a shape template and at least one color criterion, the ~~method~~ <u>system</u> comprising:

means for capturing a digital color image;

<u>means for performing color segmentation on the digital color image to produce at least one segmentation matrix;</u>

means for correlating at least one region of interest within the digital color image with a template matrix, where the reference matrix is specific to a reference sign; and

means for recognizing the image as containing the reference sign, responsive to the correlation means[[.]]<u>,</u>

wherein the means for performing color segmentation comprises means for comparing a plurality of color components at each of a plurality of pixel locations within the digital color image to the color criterion, the color criterion comprising at least one relationship between two color components selected from the group of R,G,B.

19. (New)   The method of claim 1, the color critierion further comprising a first color component selected from R,G,B being greater than a first threshold value, the first threshold value expressed in terms of a second color component selected from R,G,B that is different than the first color component.

20. (New)   The method of claim 19, the color criterion further comprising a difference between the second color component and the remaining color component selected from R,G,B being greater than a second threshold value, the second threshold value expressed in terms of a difference between the first color component and the second color component.

21. (New)   The method of claim 1, the color criterion further comprising a difference between a first color component and a second color component selected from R,G,B being greater than a first threshold value, the first threshold value expressed in terms of a difference between a third color component selected from R,G,B, and the second color component.

22. (New)   The computer readable medium of claim 17, the color critierion further comprising a first color component selected from R,G,B being greater than a first threshold value, the first threshold value expressed in terms of a second color component selected from R,G,B that is different than the first color component.

23. (New)   The computer readable medium of claim 17, the color criterion further comprising a difference between a first color component and a second color component selected from R,G,B being greater than a first threshold value, the first threshold value

expressed in terms of a difference between a third color component selected from R,G,B, and the second color component.

24. (New)   The system of claim 18, the color critierion further comprising a first color component selected from R,G,B being greater than a first threshold value, the first threshold value expressed in terms of a second color component selected from R,G,B that is different than the first color component.

25. (New)   The system of claim 18, the color criterion further comprising a difference between a first color component and a second color component selected from R,G,B being greater than a first threshold value, the first threshold value expressed in terms of a difference between a third color component selected from R,G,B, and the second color component.